10 ⟋

| Controller |
| Disk ⟋16   12 |

14 ⟋

| Host System |

FIG. 1

20 ⟋ Power On/Reset

21 ⟋ Perform selftest and set disk state to Idle

22 ⟋ Set timer T=0 & set values of N and M based on target duty cycle

29 ⟋ Start to perform the next command

Yes → Is the command complete? — 30

No

23 — Is there a command waiting to be performed?

No → 25 ⟋ Set disk state to Idle

Yes

31 — 1mS since the last time T was updated? → No

Yes

32 — Subtract M-N from timer T value

26 — 1mS since the last time T was updated?

No ← 24 — Is T>0?

No

Yes

Yes

27 — Add N to timer T value
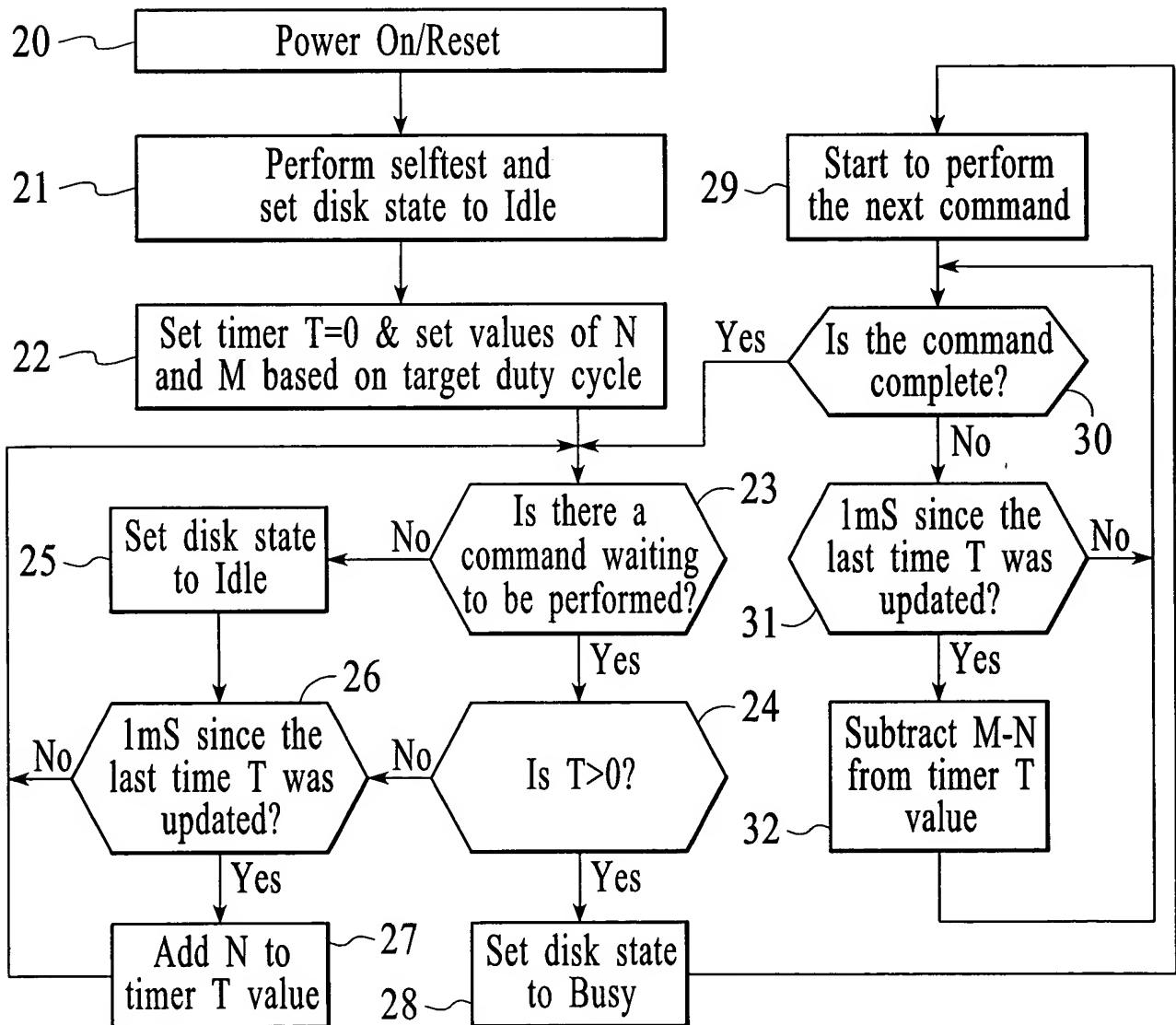
28 — Set disk state to Busy

FIG. 2

Time at end of time period x	Timer/counter variable T at end of period	Disk drive state (Idle/Busy/Delay)	Command #'s waiting	Running average duty cycle %
1	1	Idle	None	0
2	2	Idle	None	0
3	3	Idle	None	0
4	0	Busy - Command #1	None	25
5	-3	Busy - Command #1	None	40
6	-2	Delay	Command #2	33
7	-1	Delay	Command #2	29
8	0	Delay	Command #2	25
9	-3	Busy - Command #2	None	33
10	-6	Busy - Command #2	None	40
11	-5	Delay	Command #3	36
12	-4	Delay	Command #3	33
13	-3	Delay	Command #3	31
14	-2	Delay	Command #3	29
15	-1	Delay	Command #3	27
16	0	Delay	Command #3	25
17	-3	Busy - Command #3	None	29
18	-6	Busy - Command #3	None	33
19	-9	Busy - Command #3	None	37
20	-8	Delay	None	35
21	-7	Delay	None	33
22	-6	Delay	None	32
23	-5	Delay	None	30
24	-4	Delay	None	29
25	-3	Delay	None	28
26	-2	Delay	None	27
27	-1	Delay	None	26
28	0	Delay	None	25
29	1	Idle	None	24
30	2	Idle	None	23

FIG. 3